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ABSTRACT

This publication profiles nine secondary school teachers selected as the 1988-89 Laboratory Fellows by the Regional Laboratory for Educational Improvement of the Northeast and Islands. The Teacher Recognition Program is conducted by the Small Schools Network of the Laboratory to recognize outstanding teachers of a particular content area or skill. In 1989, nominations were sought for outstanding teachers of thinking and reasoning skills in small and rural secondary schools. The profiles of these nine teachers are excerpts from the portfolios submitted to the selection committee. Educational training, experiences, teaching philosophies, teaching techniques, and the use of thinking and reasoning skills in these teachers' coursework are presented. (ALL)

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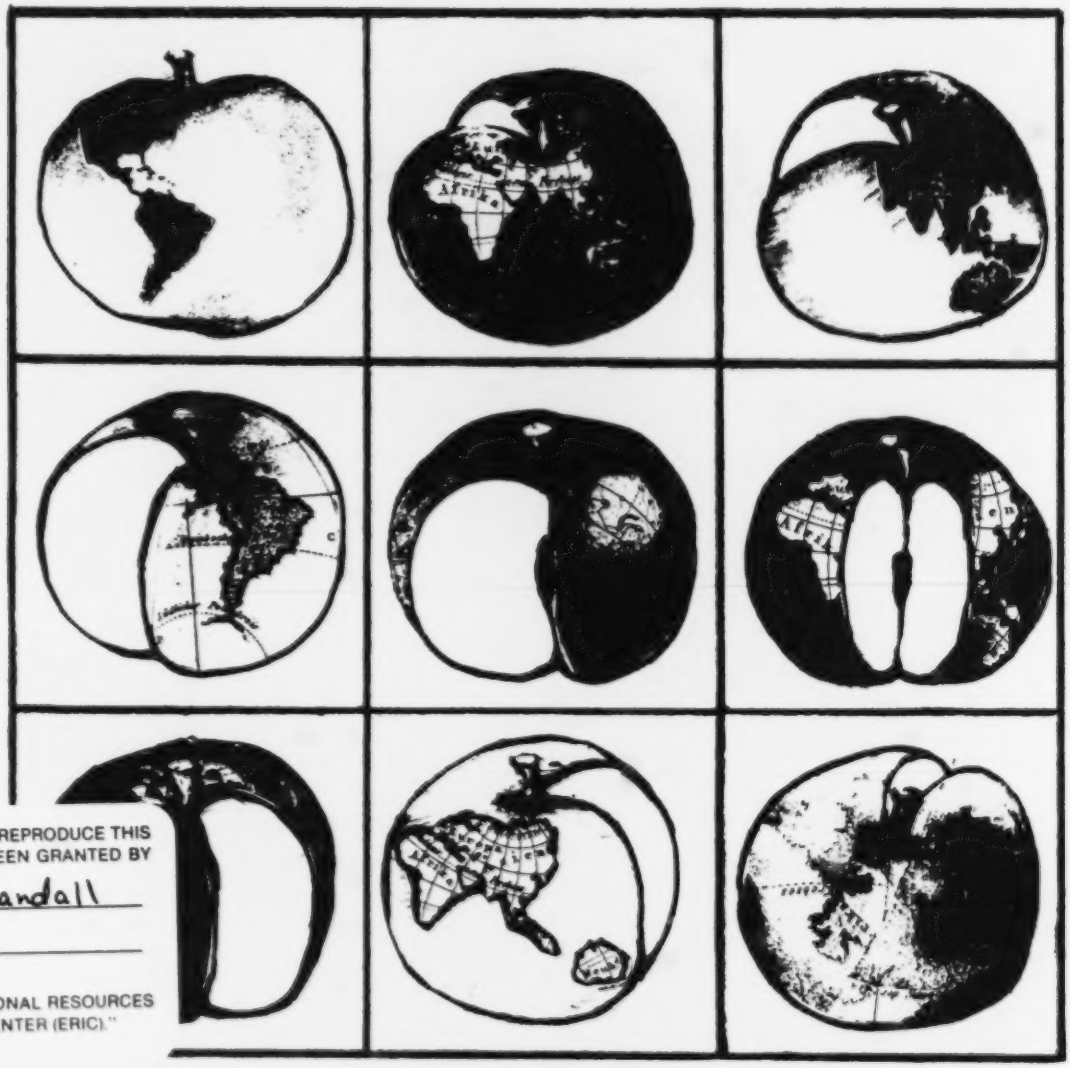
Outstanding Teaching Practices Series, Volume 2

THINKING SKILLS, Grades 7-12

Small and Rural Schools



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Outstanding Teaching Practices Series, Volume 2

THINKING SKILLS, Grades 7-12

Small and Rural Schools

1989-90 Laboratory Fellows
Teacher Recognition Program
A Project of the Small Schools Network

Linda L. Galton
1989

The Regional Laboratory
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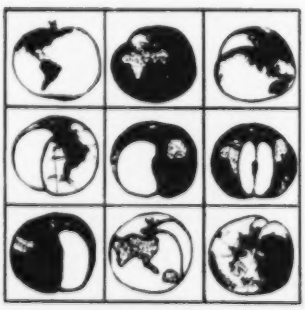

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TABLE OF CONTENTS

Introduction 2

Overview and Common Attributes 3

Portfolio Excerpts, 1989-1990 Laboratory Fellows:

Kenneth Altshuler Teacher, Science Department 5
Kathleen W. Lampert Teacher, English Department
Wayland High School
Wayland, Massachusetts

Lawrence L. Coffin Teacher, Social Studies Department 7
Oxbow High School
Bradford, Vermont

Hugh W. Keene Chair, Department of Science 9
Edward Little High School
Auburn, Maine

Thomas L. Kilbourn Teacher, English Department 11
H. Ogden Morse Chair, English Department
Joel Barlow High School
West Redding, Connecticut

Kevin O'Reilly Teacher, Social Studies Department 15
Hamilton-Wenham Regional High School
South Hamilton, Massachusetts

Jane G. Richards Teacher, English Department 17
Marathon Central School
Marathon, New York

Mary Ann Wolff Teacher, Social Studies Department 19
North Reading High School
North Reading, Massachusetts

INTRODUCTION

[I]f the truth be told, it is only rarely that I wonder why I am still teaching. I know why. I teach because it is something I do well; it is a craft I enjoy and am intrigued by; there is room within its certain boundaries for infinite variety and flexibility of approach, and so if I become bored or my work becomes routine, I have no one to blame but myself, and unlike other jobs I could have, I sometimes receive indications that I am making a difference in the quality of people's lives. That, and one more thing: I genuinely enjoy daily contact with the majority of the people with whom I work. . . .

-- **Eliot Wigginton**, reflecting on twenty years of teaching in his introduction to **Sometimes a Shining Moment**

In March 1988 The Regional Laboratory for Educational Improvement of the Northeast and Islands initiated a Teacher Recognition Program to honor teachers in small and rural schools. Conducted through The Laboratory's Small Schools Network, each year the program seeks nominations for outstanding teachers of a particular content or skill. In 1989, nominations were sought for outstanding teachers of thinking and reasoning skills in small and rural secondary schools.

This volume, the second in the Lab's **Outstanding Teaching Practices Series**, features nine outstanding secondary teachers of thinking and reasoning skills in seven programs. Honorees have received $500 honoraria and the title of **1989-1990 Laboratory Fellow**. Each was nominated by central office and building level administrators, other teachers, or members of educational organizations. Nominees then submitted to the Selection Committee "portfolios of achievement" that spoke to their educational background and philosophy, goals, and programs or projects. Selections were made based on the contents of those portfolios, brief excerpts of which appear here with a short profile of each Fellow.

Overview and Common Attributes

1989-90 Laboratory Fellows

Outstanding Teaching Practices: Thinking Skills, Grades 7-12

In reviewing the portfolios each year, the Selection Committee has been impressed, first, with the fine quality of the submissions. The committee has also noted that while the portfolios represent a wide range of teaching experiences and ways of approaching teaching, several common threads emerge from the winning portfolios. Not surprisingly, the list that follows changes little from year to year, grade level to grade level -- outstanding teaching is indeed timeless.

Taken together, these common attributes can provide one lens for examining the portfolios included in this booklet. They can also serve as guidelines or points of departure for administrators and teachers as they discuss existing programs and explore ways of enriching their staff development experiences as well as motivating new and experienced staff members.

But, while a summary of the kind that follows may serve as a guide to reading the portfolios, it should not replace the voices of those who present their own programs. Therefore, this distillation serves only as a preface to the individual portfolios, letting those who speak best relate their own stories.

The nine teachers who have been named recipients of the 1989-1990 Laboratory Fellows award demonstrate a number of common characteristics. They:

1. Exhibit a deep love for their work and true commitment to creating the best learning possible -- they revel in the successes of their students.

2. Continuously evaluate their teaching methods. They are never satisfied with things as they are but rather continually work toward a vision of how things could be.

3. Are risk-takers. They try new and different approaches.

4. Base their teaching on student-centered curriculums. They seek the most effective ways of improving student achievement through understanding what children want, need, and find most meaningful.

5. Set high standards for themselves and their students.

6. View the ability to reason and think as prerequisites for effective student learning and build those skills into all classroom activities.

7. Believe that every child has gifts and that it is the responsibility of the teacher to discover and encourage each child's special talents.

8. Give children control over their own education by providing choices and encouraging diversity while teaching students the skills necessary to become self-directed learners.

9. Actively pursue and enjoy the support and encouragement of their principals and school districts.

10. Demonstrate little patience for complacency in students, colleagues, or themselves.

11. Exhibit self-confidence, enthusiasm, and an eagerness to learn and share new ideas.

12. Demonstrate creative use of existing materials.

13. Work hard to cultivate connections with parents and community and frequently invite community members to serve as resources for class projects.

14. See themselves -- and, therefore, their students -- as part of a larger world where each individual has the responsibility to build a better world.

Taken together, these attributes portray teachers who exemplify effective teaching. The following pages contain excerpts of the portfolios submitted by the Laboratory Fellows for the 1989 Teacher Recognition Program.

Because these are only excerpts, we have included addresses and phone numbers so those whose interest is piqued by what is printed here may obtain more in-depth information.

This booklet is one small way of recognizing the teaching excellence that is found in many small and rural schools.

L.L.G.

KENNETH ALTSHULER

Physics Teacher

KATHLEEN W. LAMPERT

Science Teacher

Wayland High School
Old Connecticut Path
Wayland, Massachusetts 01778
(508) 358-7746

Nominators: Dr. William G. Zimmerman, Jr.
Superintendent
Dr. Sharon D. Hennessy
Principal

School Enrollment: 650

District Enrollment: 1,415

The joint submission of Kenneth Altshuler and Kathleen Lampert describes an interdisciplinary course that they have developed and cotaught. Entitled "Physics and Philosophy: How 20th Century Theoretical Physics Shapes the Way(s) We See Our World," the course combines philosophy, English, and physics with objectives and techniques that incorporate thinking skills across the curriculum. Their goal is to help students appreciate the interrelationships that exist "between societal and scientific philosophies in our culture."

Philosophies:

Altshuler: In this era of specialization, we are, inadvertently, teaching our students that life is composed of discrete disconnected events. . . . I feel that it is important to find ways to have students realize the personal relevancy of the subject matter and processes taught in school. In turn, the students prosper from recognizing the interrelationships of the material presented in the different subjects.

In my classes, I have approached this challenge in a variety of ways. Once a subject has been introduced in class, students are then asked to take part in demonstrations and laboratories in order to directly experience the phenomenon under study. In this way, they should gain a personal stake in the material. To further enhance this process, students are typically asked to present other examples from their own personal experience which would further demonstrate the material. In turn, through the utilization of a socratic method of questioning, I ensure that the student is able to defend and prove his/her theory. . . . Through these types of endeavors, students develop their sense of empowerment and develop the ability to deal with the interrelated issues in the world about them.

Lampert: My . . . philosophy is founded in my belief that my task is to empower my students to examine and reconstruct their understanding of the world. . . . I believe that knowledge is created by human beings in interaction with each other. The vehicle by which we learn and know is language; different disciplines have different languages which shape how they see and interpret the world.

The content of the curriculum should be the material on which each discipline focuses, considered not in isolation but in the contexts offered by the world around us. While each discipline has its own language and its own objects of interpretation, disciplines do not exist in isolation from each other or from the world students inhabit. Studying content should thus enable students to enter into dialogue with the best thinking within a particular discipline and should connect them with the significant problems of our time and of the future we can imagine.

Course Rationale:

An increasingly complex and unpredictable world demands flexibility, problem-solving ability, and creativity from its citizens. To live well in our world requires the ability to see situations from multiple perspectives and to bring multiple means of interpretation to bear upon them. In such a world, compartmentalized thinking becomes a serious barrier to growth, even to survival.

The "Physics/English" curriculum is designed to enable students to see the many interconnections between "Science" and "The Humanities," connections that exist despite the apparently vast differences in their languages. It is based on the assumption that these two areas of study need each other. Contemporary theoretical physics requires the imaginative creativity traditionally associated with literature and the arts; students of the humanities can no longer disassociate themselves from the social and ethical issues current scientific study raises. We hope that by responding to the challenges the theories of relativity and quantum mechanics pose to their inherited world views, students will broaden their repertoire of ways of seeing and interpreting their worlds.

Textbook: *Mr. Tompkins in Paperback* by George Gamow
published by Cambridge University Press

This course is designed to accommodate students who may or may not have prior understanding of classical physics. Altshuler and Lampert have developed a complete course outline, including specific objectives that cover the 16 days of the course.

LAWRENCE L. COFFIN

Social Studies Teacher
Oxbow High School
Union School District No. 30
Upper Plain -- Route 5
Bradford, Vermont 05033
(802) 222-5214

Nominator: Bruce MacLean
Chair, Social Studies

School Enrollment: 500

District Enrollment: 500

Lawrence Coffin has been teaching at Oxbow High School since 1971. His courses not only contain factual information, his methods of communicating that knowledge to students are innovative and highly personal. For example, a lesson on the Middle Ages might have students who are paired as serf and lord exchange letters from their respective roles and world views. In another class, he requires students to examine the ways in which special interest groups influence the government. The following excerpts from his portfolio reflect his philosophy and motivations for teaching thinking and reasoning skills.

Philosophy: Learning should take place in a general atmosphere of creative order (and sometimes creative disorder). Teaching in a project-centered classroom requires resolution, creativity, and steady nerves. Learning here can be fun, hard work, sometimes exasperating, rewarding, and quite often should continue right out the door.

Students should learn the essential facts of a discipline, not to hoard them, but so as to become familiar with the underlying structures. Cultural literacy should be a teaching goal to the degree necessary to empower students with understanding; it should be taught in such a way that it enhances application of that knowledge. To me, classroom materials are best used as a 'context' for thinking.

Questioning should be a central tool in the social studies classroom, giving students the opportunity to question the facts, various points of view, their own personal conclusions and beliefs as well as those of the community, in addition to voices from the past and those who would predict our futures. The goal of questioning should be to develop capable thinkers, the problem solvers needed in a democratic society. . . . I teach thinking skills because that is what I believe a good teacher does. What better can one do for one's students than to teach them to think and grow not to need you?

Techniques Used to Teach Thinking Skills:

Career project: All seniors analyze the relationship between the government, special interest groups, and the career field into which they plan to go. . . . Students probe such

topics as the impact of these various groups and the government on career education, licensing, professional working practices and problems, client relations, and chances for success. This is an individualized project that involves each student working with me over a fifteen-week period. Of all the project activities I do, I consider this to be of the greatest value to the students.

Spectrum: [Students are taught] a number of techniques for processing and analyzing information. One that I use often . . . is the spectrum procedure. Components include (a) a central factor, often posed as a question (e.g., what shall be the relationship of the government to a woman's decision to have an abortion?); (b) extremes (e.g., absolute personal freedom and absolute government control); (c) alternatives available between those two extremes and where these are placed on the spectrum (e.g., only states limit, rape victims only, government funding, parents' consent required, etc.); (d) analysis of positions held by students, opinion makers, others; [and] (e) analysis of differences, how decisions are made through compromise, conflict between points of view, etc. . . .

Other Techniques That Encourage Thinking Skills:

A) **Slice of life:** Students personalize the experiences of someone in a period of history in a first person document. . . . In each case, individual insights are shared in a group "meeting of the minds" in which common or historically unique themes are explored. Both the individual personalization and the group dialogue are helpful . . . for exploring the commonality and uniqueness of the human experience. . . .

B) **The "why" of history:** "Why does history happen the way it does?" is a central theme in my 9th grade class. Students analyze not only standard answers to that question, but also how people have changed that question and their answers throughout Western history.

C) **The power of questions:** The power of questions in classroom and individual discussions is exemplified by the use of open questions, student-generated questions, and waiting time for thinking. . . . Through questioning, students are encouraged to interpret and evaluate information and link new information with prior knowledge.

D) **Group decision making:** In the 9th grade class, group decision making is taught and reinforced with a rural and urban experience. The "outward bound" model is used on a climb of Black Mountain. Later a class trip to Montreal includes a scavenger hunt.

E) **Community links:** One unit in United States history has a focus on neighborhood change. Supplied with a photocopied map of their neighborhood from an 1877 county atlas and slides from 19th century photos, students analyze changes in their neighborhood . . . [and] develop a supportable theory of change, complete with a new map.

F) **Point of view:** My 8th grade social studies class looks at point of view as a historian might consider it. . . . [A]ctivities in this unit are: a) an analysis of point of view in reporting the Battle of Lexington and Concord, using Howard Fast's novel and Film *April Morning,* three prints from fifty-year intervals, and four eyewitness accounts; b) point of view using current and historical political cartoons.

HUGH W. KEENE

Science Teacher; Department Chair
Edward Little High School
Auburn Heights
Auburn, Maine 04210
(207) 783-8528

Nominator: Lawrence A. LaBrie
Principal

School Enrollment: 1,182

District Enrollment: 4,500

Hugh Keene, who has served as head of the science department at Edward Little High School for the past eighteen years, is also one of the few Maine teachers currently holding the status of Master Teacher. The following excerpts from his portfolio describe his philosophy and the questioning approaches he uses to challenge his students to think critically.

Philosophy:

. . . I feel that the teacher's objective should stress the process as much as the content even at the high school level. Students should be able to appreciate . . . how the validity of science is limited by the uncertainty inherent in all science. The student must know how to use the discovery method and the tenets of the scientific method to understand new concepts and to find possible solutions to problems. Students need to be both skeptical and questioning and, at the same time, keep a curiosity and respect for logical thinking. To accomplish this, I feel I must provide experiments that delight and go much deeper than demonstrating a physical fact; they must provide for seeing a phenomenon, watching a test, or finishing an argument. My goal in teaching physics goes beyond supplying information: it is concerned with conveying to the students the nature of physics -- what it is, how it is done, how it grows in strength of knowledge, and even where it may lead.

Questioning Approaches Used to Obtain Goals:

The method of teaching thinking and reasoning skills I have tried to incorporate in my classes cannot be developed by the use of questioning only during the input session or when checking for understanding. Instead this approach must be followed through in all areas of teaching. Too often I have seen teachers use three curricula: the written curricula given to them for the course, the one they teach, and the one they test. I feel that objectives of the course must reflect the need for developing thinking skills, that these skills must be presented daily in the class presentation, and that the test given to the student [must] reflect this major objective.

Accordingly, for my physics class, I have two main goals: to teach students the fundamental concepts of physics and to develop the students' ability to think for themselves. The process becomes as important as the material covered. Therefore, I try to use questions that will develop curiosity and instill inquiry in the anticipatory set, as a means for input, for checking for understanding, and in the evaluation that may be a written test, oral communication, or observation. This process is continued in the labs that are structured for open ended problems with no one correct answer, but require analysis of possible solutions.

Examples of Questioning Techniques:

A) Higher level questions will not be effective unless the student is allowed to tackle the question without fear of getting a "wrong" answer. Therefore, I try to make sure my questions above the recall and knowledge level are not structured to have one correct answer. . . . Some interesting discussions can then develop when students are giving their own reactions and not trying to give "the correct answer."

B) Other questions will lead to actual experiments to find the answer. Before the topic of buoyancy is studied, a question would be, "If you are in a boat in a swimming pool with a rock in the boat, what happens to the water level when the rock is dropped into the pool?" [After experimentation] . . . there will be a long discussion before students are satisfied because I do not explain why the event happened as it did.

C) . . . Provocative questions make excellent anticipatory set activities that increase student interest in the subject. Similar use of higher level questions must also be used in the evaluation procedures selected. Students realize that they will not see on any test in physics a definition or a vocabulary word, but they realize that they must understand the meaning of such definitions and vocabulary words in order to answer the questions presented.

D) To promote real thinking skills, I first have to show the students that getting an immediate answer is not the main objective of the course. This is the most difficult task in physics because students are used to solving for the correct answer in math. . . . They find it hard to realize I am much more interested in their thought process than in the answer received. However, by encouraging students to work in groups with each student contributing to the group process, the students slowly but surely learn how to use math as a tool of physics as it was meant to be. . . . The same procedure is used for labs. I start with labs that are cookbook directions for a certain process, but as the year progresses I am able to have the students do more and more of the lab process on their own. . . .

Summary -- The Importance of Integrating Questions:

Effective use of questioning cannot be accomplished if questions are presented as a separate block of information. They must be an integral part of the class and lead to a logical conclusion. Students will often ask in my class, "Where does this lead?" For those students I know I am succeeding in my objective relative to the process of teaching physics. They can see more than just the fact presented for the day. By using their thinking and reasoning skills, they can conceptualize the larger picture and so understand the why as well as the what that is being taught.

THOMAS L. KILBOURN

English & Thinking Skills Teacher

H. OGDEN MORSE

English Teacher; Department Chair

Joel Barlow High School
100 Black Rock Turnpike
W. Redding, Connecticut 06896
(203) 938-2508

Nominator: Nelson W. Quinby
Director of Secondary Education

School Enrollment: 670

District Enrollment: 670

Mr. Kilbourn's and Mr. Morse's mutual dedication to providing students the best education possible has won accolades for both of them: each has presented at seminars and major conferences on the topic of thinking skills; each has taught numerous workshops and published articles in well-known journals. They have continually challenged themselves and, as a result, have immeasurably enriched the lives of their students. They have taught together at Joel Barlow High School for the past seventeen years.

The following excerpts from their portfolios illustrate, at times, dramatically different approaches to the teaching of thinking skills. Both approaches, however, have as their ultimate goal enabling students to think clearly and critically about their world.

THOMAS L. KILBOURN

Philosophy:

A statement made by Martin Heidegger in his book *What is Called Thinking?* best summarizes my philosophy as a teacher: "Teaching is more difficult than learning because what teaching calls for is this: to let learn. The real teacher, in fact, lets nothing else be learned than learning."

Methods:

Students say I make them think. The truth is I let them think. . . . I try to persuade students to become ecologists in the world of knowledge. In lesson design, in the formulation of tests, in the structure of the classroom I constantly place diverse ideas and points of view in mind-bending relationships. Then I encourage students to be brave enough to transform the collages, the world of ideas and knowledge, into a home they can call their own, doing so with the same sensitivity ecologists have for complex organisms and their relationships to their larger environment.

. . . Students know that I place a great deal of emphasis on two essential human capacities: The capacity for reflective thought and the ability to create and understand metaphors. Metacognition was a constant companion in my classes long before the word took on currency in the critical thinking movement; it continues to be so. Students are persuaded to develop a habit of taking apart ideas -- claims, notions, arguments, points of view, texts -- and then putting them together in new juxtapositions. Our routine is to move from identification to classification to causal relationships to discussion of how we went about doing it all and back again. The insistent push is for discovery, synthesis, judgement, evaluation.

Utilizing the many modes of metaphor from analogy to synecdoche, I structure lessons where students are invited to look at **this** as **that**, a root definition of metaphor. Connection is a key word in our classroom vocabulary; I invite students to discover what is similar in dissimilar expressions. . . . [T]hey know the first explication is not the final expectation.

All the testing in the courses I teach is by essay and oral exam. My tests are designed to be teaching devices, not sounding devices. I [can] say with confidence that I give some of the most unusual and demanding tests the students have ever experienced. Students tell me I play head games with them. I accept that as a quintessential compliment in all the classes I teach.

The Course - Thinking: Process and Application

The second semester senior elective is an interdisciplinary culmination of the student's academic experience. Students receive instruction in specific thinking skills and strategies: the process of thinking. The seminar methodology uses class discussion, shared writing assignments, and periodic projects. We begin the semester with a series of worksheets designed to bring into focus types of thinking, levels of knowledge, ways of knowing. Each worksheet is concluded with a request for the students to describe and share the thinking process(es) they followed. The worksheets contain problems of logic, word puzzles, quotations from noted authors, [or] extraordinary *New Yorker* cartoons.

Students are required to maintain a dialectical notebook, a tightly structured journal for daily responses to the worksheets or topics discussed. Students look at models of thinking ranging from Costa's "A Model of Intellectual Functioning" to Bloom, Sternberg, deBono, Marzano, and others. Our classroom texts are *The Harper and Row Reader,* an excellent collection of essays edited by Wayne Booth and Marshall Gregory, and *The Art of Thinking* by Vincent Ruggerio.

It is important to emphasize two features of the course. First, the classroom furniture is seminar tables. This means all the students are on center stage with the teacher, sitting around as a community of learners. Secondly, the exchanges are truly dialogical. My style as a teacher is to avoid quick, direct answers to student questions. I do my very best to honor the questions as I redirect them back to the asker or to the other students. To extend this a bit, I bring in thinking strategies as the students discover a need for them. My task is to create an atmosphere wherein students will be provoked to ask the question, What do we need to solve this problem? I may then provide them with a model or we may go about the task of inventing one.

H. OGDEN MORSE

Mr. Morse brings together a focus on writing as a process, thinking skills, and collaborative learning. About this combination, he writes:

. . . Although classes were not as orderly as before, I found that this new approach to subject matter addressed some of the learning problems which my students had shown but which I did not fully understand or know how to cure. For instance, these skills and strategies made classes more exciting (although less predictable), resolved some of the students' writing problems, and increased, indeed demanded, student originality. Furthermore, this emphasis on cognitive development gave an intellectual basis to other areas such as process writing and collaborative work and focused my attention on the indivisible nature of learning.

Philosophy:

We must realize that the role of the teacher has changed. No longer the traditional "giver of information," the teacher has become a facilitator of learning, the creator and director of those activities by which students discover and learn.

Furthermore, research and experience have shown that critical thinking, process writing, collaborative learning, and independent inquiry produce skills that complement and overlap each other. Thus, teachers must make a conscious effort to include these learning skills as part of their lesson plans and to see that they are balanced with other subject matter.

Sometimes less is more. We need to change the structure of our classes and our concept of coverage. These skills take more time for students to learn than the factual materials of texts, and they are best taught in student-centered classes with much practice time. They cannot be taught effectively by the standard lecture or question-answer method.

We must recognize that the subject matter of the course is the skills, not the specific literary works. The texts become merely the vehicles by which we teach skills. . . . [N]ow we realize that only with these learning skills can students possibly hope to extend

their analyses of text beyond the classroom. Even scientists and historians recognize that the constant revision of knowledge, of facts, of truth, makes these skills critical for post academic success.

Every student has the ability to think. And the ability to think critically is the result of a wide range of activities. It is this fact that binds together the curriculum of the school.

Research indicates that the process of thinking consists of identifiable skills which can be learned. Thus, it is possible for all students, regardless of ability, to learn to think better.

Course Rationale:

. . . I created a model literature unit for high school seniors and called it "The Trial of Grendel." Its purpose is to integrate the many learning activities which together seem to foster better thinking skills. [It consists of] literary interpretation and analysis, writing, oral and visual components, collaborative work, and thinking skills. The thinking skills in this unit include: recall of material; interpretation of meaning based on data; synthesis of texts and ideas; logical development of an argument; developing and assessing various points of view; summary; decision-making based upon data; and metacognition.

From all of this work, I have developed a chart which outlines the process by which all students arrive at a product. This chart shows students that this work is, indeed, systematic; they can see either the order by which the work was done or any areas which they might have failed to consider, thus, adversely affecting their product.

Cognitive Activities Associated with Literature Unit:

- Introductory activities [includes free association]
- Read text and keep dialectical notebook
- Discuss topic
- Independent time (outside class) [includes reflection and comparison with relevant ideas/situations/emotions]
- Read others' notes and papers
- Write paper
- Metacognition [analyze concepts and examine the relationship between activity and thinking processes used]

KEVIN O'REILLY

Social Studies Teacher
Hamilton-Wenham Regional High School
775 Bay Road
S. Hamilton, Massachusetts 01882
(508) 468-4491

Nominator: Richard Aieta, Chair
Social Studies Department

School Enrollment: 650

District Enrollment: 1,710

A social studies teacher at Hamilton-Wenham Regional High School for thirteen years, Kevin O'Reilly is also a recognized authority on critical thinking skills. He has conducted nearly 100 workshops, written numerous articles for professional journals, and contributed to six books. In addition, he has published four books on critical thinking, one book on critical viewing, a videotape emphasizing critical viewing, and the teacher's guide for a major U.S. history text. Role playing, problem solving, and critical viewing play important parts in his classroom. The following excerpts from his portfolio elaborate on these teaching strategies.

Definition:

I define critical thinking as having good reasons for what you believe. It involves careful, precise, persistent, and objective analysis of any knowledge claim or belief to *judge* its validity and/or worth. Critical thinking involves certain attitudes as well as skills. Both attitudes and skills are targeted in my curriculum materials and teaching.

The Role of Attitudes:

Unfortunately, many students feel that history is for memorizing, not judging. To change this attitude I give students opposing viewpoints of historical events and tell them to decide what happened. . . . Students eventually learn . . . that historians disagree on many issues in history, that there is more than one way to tell the "story."

The opposing viewpoints approach also affects students' attitudes towards the nature of knowledge (epistemology). Many students start the course with an implicit belief that knowledge in history is complete, unchanging, and . . . exists to be memorized. After reading opposing interpretations they begin to understand that historical knowledge is fragmentary, changing as new evidence is discovered, and open to question and interpretation. They come to realize that historical knowledge is to be wrestled with to help them better understand how the world works.

Skills:

In addition to certain attitudes, critical thinking involves particular, discreet skills that can be taught consciously and systematically. Some of them are:

- Identifying and evaluating sources of information
- Assessing cause and effect reasoning
- Analyzing comparisons or analogies
- Evaluating generalizations
- Identifying frame of reference and unstated assumptions
- Analyzing language
- Bringing in information relevant to the topic

The sequence of methodologies to teach these skills are basically the same for every skill.

Step 1. The students are confronted with a problem from history which involves the use of the skill to be taught.
Step 2. A concrete demonstration or familiar example is used to introduce the skill.
Step 3. The students think about their thinking. They establish the criteria for the skill.
Step 4. The students repeat the skill with coaching.
Step 5. The students apply the skill to new history problems, new interpretations, textbooks, classroom questions.
Step 6. The students demonstrate the skill in their writing.

Critical Viewing:

All the critical thinking skills mentioned above apply to evaluating media as well. But media interpretations also use sound and picture which require other methods of analysis. [For instance,] . . students are shown two opposing viewpoints of America's role in the War [in Vietnam]. Worksheets in the teacher's materials ask students to consider the sequence of slides and the tone of the music in analyzing the viewpoints. Individual slides are reproduced on a worksheet and students are instructed to write narrations for them. . . . In the videotape, the argument is made that Ho Chi Minh, as the father of his country's independence movement, is analogous to George Washington's role in American independence. While this claim is being made, a slide of Ho Chi Minh is shown, followed by a slide of George Washington, and fife music is played. A person could reject the analogy based on its logic (Ho Chi Minh was a totalitarian dictator while George Washington was the leader of a democratic, liberal revolution) but subconsciously continue to associate Ho Chi Minh and George Washington because of the picture sequence and the fife music. The class discusses these types of subconscious associations in an attempt to subject them to rational analysis.

Students also evaluate commercials, docudramas, the news, and campaign ads in their study of the media. They compose their own commercials and on the final exam they evaluate a campaign ad.

. . . I believe my program empowers students to make decisions for themselves. They have a healthy skepticism of claims made by others. And they know they have to support their own beliefs with reasons. These skills and attitudes are at the center of history education in a democratic society.

JANE G. RICHARDS

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Nominator: Michael Joseph, Jr.
Superintendent

School Enrollment: 509

District Enrollment: 908

A practitioner for twenty-two years, Ms. Richards has continually reviewed her methods and challenged herself to be a more effective teacher. The process of sharing her writing and her awareness of the composing process, she says, has made her much more sensitive to the problems that student writers encounter. The following poem written by Tom Rabe (1986), a Marathon student, captures the care and patience she takes in teaching creative writing to her 7-12 graders.

WRITING
Writers are like a fine wine.
Each has a purpose that is destined
to surface . . .
given enough time.

The following excerpts from Ms. Richard's portfolio elaborate on the strategies she uses to foster critical thinking in her students, using the creative writing process as her vehicle.

Program and Methods:

Since all teaching strategies are integrated, it's difficult to isolate them. However, I've divided some of my teaching methods into four categories: the journal and reading log; my role as teacher-researcher; the use of portfolios in the classroom; and student evaluations.

More than any other strategy, the journal has fostered creative responses and critical thinking. When I work through the act of composing with the students, I establish a climate for constructive criticism as they work in small groups or pairs. As they write, I help them discover how they compose, what they're thinking, the origin of ideas, attitudes, and individual habits and eccentricities which help them know themselves better as writers. One of my teaching goals is to enable my students to develop strategies to solve problems as they organize, write, and proofread their formal and informal writing tasks.

A) Journals. Students record comments, reactions, and questions related to personal experiences, written material, or classroom situations in their own voices. The purpose of journals is to capture the unconscious and conscious thoughts of writers or to "think aloud on paper." Students find out what they know about a particular subject and what they don't know.

To keep the ideas flowing, students write for five or ten minutes. If the teacher writes with the class and shares her ideas, students are more apt to share their entries, too. Individual entries aren't graded because evaluation may discourage risk taking. . . .

B) Reading logs. The Logs are comprised of an objective reaction on one page (or column) and a subjective account which is the opposite of the experience just related. The process helps promote an understanding of the text on two levels and to practice "critical and creative thought." First, students record what is actually occurring from the situation or text. Second, students react to facts or events. . . . [The Logs are] useful to compare and contrast opinions and to test theories and reactions.

C) Teacher as researcher. My interest in the research role began as a case study completed in partial fulfillment for my MA in Writing from Northeastern University. . . . During the 1987-88 school year, I conducted a second case study involving one of my 11th grade classes. My thesis question included this problem: Is it possible for my eleventh grade students to trace their own act of composing? I decided to focus my research on helping students become more aware of their own writing process.

D) Portfolios. These collections of reading and writing activities give students the opportunity to experiment with a range of formats in various stages of revision.

The purpose of the portfolio is to encourage the student to take risks while working through reading/writing tasks. Approximately three weeks are devoted to these reading/writing activities, which are completed both inside and outside of class. The student records the activities daily and contents are recorded on a master sheet. Each period is divided into three segments: a mini-lesson concerning a common problem; an activity period; and a sharing time.

E) Student evaluations. [Examples of thinking in action] can be taken directly from students' journals showing how they evaluate, organize, plan, and solve problems. . . .

Summary:

Today I continue to read about writing, talk to colleagues, and present writing workshops as I constantly search for better teaching strategies. I observe my students reading and writing, solicit feedback from them, and try to improve my approach. . . . As a faculty, my colleagues and I build programs and ongoing curricula by listening to each other and by learning from our mistakes and successes. Our goal is to challenge our students to think both critically and creatively as they become adults.

MARY ANN WOLFF

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Nominator: Dr. William E. Butler
Principal

School Enrollment: 441

District Enrollment: 1,890

Dr. Mary Ann Wolff, social studies teacher at North Reading High School for the past sixteen years, has a professional reputation that reaches far beyond the walls of her classroom. In addition to her challenging teaching schedule, she is an instructor in the Critical and Creative Thinking Program at the University of Massachusetts, Boston. She has also led many workshops, codirected summer institutes, and directed or contributed to texts on thinking skills.

Dr. Wolff believes that an important aspect of her program is helping students transfer their social studies knowledge to other subject areas. The following excerpts from her portfolio elaborate on her techniques and beliefs.

The Critical Thinking Spectrum:

In my social studies classes today I try to cover all parts of what might be called the "critical thinking spectrum." With decisionmaking as the final goal, the students and I work both on enlarging our understanding of different frames of reference and on improving our use of these specific skills:

1. Making and judging definitions
2. Making and evaluating observations
3. Determining the reliability of sources
4. Recognizing, making, and evaluating simple inferences
5. Making and evaluating generalizations
6. Recognizing and evaluating cause and effect reasoning
7. Recognizing and evaluating analogies
8. Recognizing parts of arguments
9. Evaluating arguments

I believe it is crucial that students improve their thinking both in the technical sense of avoiding the fallacies associated with sloppy application of the above skills and in the larger sense of seeking out alternative approaches to problems that need solving.

. . . My approach is as follows: 1) identify those skills which seem most appropriate for emphasis within a given course, 2) arrange them in some sequence from simpler to more complex, and 3) introduce each one at the appropriate time in a focused lesson, using content from the course. After a skill has been introduced, it is reinforced and then applied in as many subsequent contexts as is workable. When a student is using the skill, he or she is asked, "What kind of thinking were you doing?" Posters charting the components of a particular skill hang around the room and are modified as students come up with improvements. By the end of the course a number of skills have been combined in group work, essays, research projects, role plays, or simulations. . . .

In the teaching of thinking skills, I believe there are four important considerations, whatever the course content. They are lesson format, attitudes and dispositions, social and psychological issues, and content and process.

Lesson Format:

The format I use to introduce thinking skills lessons involves five components: Motivation, Introductory Explanation, Thinking Activity, Thinking About Thinking, and Transfer. . . . Each component of the lesson is important. The motivation question and the introduction engage student interest and identify the skill and its importance. The activity gets them to think. Thinking about thinking is often difficult for them, since they aren't often asked to verbalize in that way, but it is practice in what to me is the ultimate goal of a thinking skills program: helping students learn how to think about and improve their own thinking. The transfer activities seem to be absolutely necessary.

Transfer doesn't just happen -- it needs to be explicitly taught. Because of this fact, a final component of any introductory thinking skills lesson would be homework to reinforce the transfer of the skill still further. Students should be asked to find still other everyday and academic contexts where the skill is used.

Attitudes and Dispositions:

Working with the skill of judging generalizations has brought home to me a key consideration in teaching thinking: the importance of attitudes and dispositions. . . . It is not that they don't know HOW to judge a generalization, it is that often they are not motivated to do so. One way of getting students to do more questioning is to repeatedly link the question, "Is it a representative sample?" with any important generalization. Over time, they then begin to automatically question general statements they hear or read.

Just as important as the questioning is the development in students of a "critical attitude" -- an inclination to question, not in a nit-picking, cynical kind of way, but in a manner that flows from an understanding that knowledge is complicated and that our biases are strong. With that "critical attitude," students will be more likely to question not only generalizations, but other types of reasoning such as causal gains and persuasive analogies, and to consider the reliability of reported observations.

Social and Psychological Issues:

. . . A combination of gender roles, learning styles, and personality seems to have a strong influence on how comfortable a student is with thinking critically in a supportive and cooperative way. . . .

When developing a "thinking lesson," as in any type of lesson development, consideration has to be given to differences in learning styles and particular abilities. We work with the skills both verbally and visually, using graphic organizers, such as Venn diagrams for judging analogies, or flow charts for cause and effect reasoning. Students are encouraged to illustrate their reasoning through humorous drawings or silly examples to help us all remember key points.

Content and Process:

. . . It seems to me the "content crunch" is a real problem, made worse by a misunderstanding of what we mean by content. . . . However, if we define content as an understanding of certain facts, theories, and connections, rather than simply recognition of a name or place, students will RETAIN more knowledge by working with material in thinking lessons than they will through approaches which simply transmit many more facts.

Obviously, there is a middle ground here in which both types of lessons [content versus thinking skills] are used. I find that, depending on the subject and the students, my own emphasis changes. . . . To me an excellent lesson is one in which the subject matter or approach moves the students so that they are actively engaged in a thinking/discussion process through which they get or determine the facts instead of being given them. Needless to say, excellent lessons are the ideal, not necessarily the every day reality!

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